

NHRC Scientist Receives Top Scientist Award at Pentagon

Assistant Secretary of the Navy for Research, Development and Acquisition Sean Stackley recognized a distinguished group for their achievements, professionalism and technical excellence during a ceremony July 15 at the Pentagon honoring the 2010 Dr. Delores M. Etter Top Scientists and Engineers of the Year award winners.

Cmdr. Patrick Blair, respiratory diseases research department head at the Naval Health Research Center (NHRC), San Diego, was recognized for his contribution in the early response to the 2009-2010 A/H1N1 (swine) influenza pandemic.

"These naval scientists and engineers are visionary thinkers and innovative problem solvers," said Chief of Naval Research Rear Adm. Nevin Carr, keynote speaker for the event. "Today, we honor their achievements as shining examples of what bright, hard-working people can do to deliver significant advanced capabilities for ships, aircraft, submarines and expeditionary forces."

Blair was recognized for his early response to the H1N1 pandemic. Blair and his colleagues reported the first two cases of H1N1 in April 2009 as part of a collaborative effort with the Centers for Disease Control and Prevention (CDC) to conduct surveillance along the border between the United States and Mexico. Influenza sequence information and isolates were shared with the CDC, and the NHRC-isolated virus ultimately became the seed strain in the 2009-2010 H1N1 vaccine. NHRC was awarded the CDC Reference Laboratory of the Year Award for this work.

"I am pleased to share in the 2010 Delores M. Etter Science Award," said Blair. "I am well cognizant that this honor is a reflection of the diligence and hard work the NHRC laboratory and administrative team bring each day to our mission to achieve force



From left: Sean J. Stackley, Assistant Secretary of the Navy (Research, Development and Acquisition); Cmdr. Patrick J. Blair, Naval Health Research Center; Dr. Delores M. Etter, former Assistant Secretary of the Navy (Research, Development and Acquisition).

protection."

NHRC is considered a key surveillance and diagnostics center for San Diego's fleet concentration area and for the entire southwestern United States. The laboratory conducts surveillance of respiratory pathogens for all DoD training activities, Pacific Rim Navy and Marine Corps stations, and over 20 large-deck U.S. Navy ships. Their work contributes directly to force health protection by defining critical respiratory pathogen threats and directing appropriate intervention strategies. The laboratory's work in diagnosis, training, outbreak response and clinical trial development for novel therapeutics has brought great credit to the Navy and provides a clear public health benefit to service members and their families around the world.

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Commanding Officer's Message

For over two years, the *Naval Medical Research and Development News* monthly newsletter has highlighted the outstanding efforts and achievements of our enterprise. We succeed because of the 1,600 dedicated people who make up our global team who are improving war-fighter readiness and enhancing the health, safety and readiness of Navy and Marine Corps personnel. As you read these pages, you will see that we are engaged in global capacity building in our efforts to enhance relationships between the U.S. and other countries. We support international military-to-military collaborations and public health capacity-building efforts. Our military personnel maintain a high level of individual military readiness to support BUMED's operational and disaster relief/humanitarian assistance deployment requirements.



Commanding Officer sends,
Richard L. Haberberger, Jr.
CAPT, MSC, USN

Pentagon's Senior Health Affairs Advisor Lauds Overseas Labs

By Donna Miles, American Forces Press Service

The Defense Department's overseas medical research laboratories will play a key role in ensuring the readiness of deployed U.S. military forces well into the future while also contributing to global health and U.S. partnership building around the world, the Pentagon's senior health affairs advisor said.

Dr. Jonathan Woodson, assistant secretary of defense for health affairs, called the overseas Army and Navy labs that have helped protect deployed service members for the past 60 years -- and civilians around the world as well -- "a national investment and a national treasure."

Woodson addressed a Center for Strategic and International Studies (CSIS) forum June 28 as its Global Health Policy Center released a new report, "The Defense Department's Enduring Contributions to Global Health -- The Future of the U.S. Army and Navy Overseas Medical Research Laboratories."

Woodson echoed the CSIS report's finding that the laboratories, while "exceptional" in their contribution to military readiness as well as scientific research and global health, are



"surprisingly under-recognized and undervalued" outside the research community.

"For relatively little dollars, we get a huge benefit, not only in terms of protecting the citizenry of this nation," he said. "But the added value to the world is just incredible."

The CSIS report noted some of the labs' contributions, among them the first vaccine for Japanese encephalitis virus; the first isolation of the Rift Valley Fever virus; the first identification of new strains of dengue fever in Peru; the demonstrated efficacy of several drugs to treat and prevent malaria; and in Thailand, the first successful HIV/AIDS

vaccine trial.

These and other efforts have helped elevate the state of military medicine to its highest levels ever, particularly during the last decade. "We have the lowest rate of disease and nonbattle injury ever witnessed in the history of warfare," Woodson said. "That success started in our research laboratories."

The laboratories' achievements have extended far beyond the military, helping to reduce human suffering and promoting stability around the world, Woodson said.

"Building healthy populations is a worthy strategic engagement approach," he said. "In fact, utilizing medicine and building healthy populations is a way of preserving the peace so we don't have to get into these kinetic wars and can focus on building stable societies."

He paid tribute to the professionals who work largely behind the scenes to advance the labs' work.

"Make no mistake, their contributions and expertise are really valued, and they know that their work matters," Woodson said. "But their work is done without fanfare and with real modesty and with a deep respect for the science and data and discipline of their art and their practice."

Naval Medical Research Unit No. 6 Change of Command

By NAMRU-6 Public Affairs

Friday, July 8, Naval Medical Research Unit No. 6 (NAMRU-6) Peru marked the changing of command from Capt. John W. Sanders to Capt. David B. Service in a ceremony attended by dignitaries from the U.S. Embassy, U.S. Navy, and the Peruvian Navy, Army and Air Force. The ceremony was presided over by Capt. Richard L. Haberberger, Jr., commanding officer, Naval Medical Research Center (NMRC). Guest speakers included Rear Adm. Bruce Doll, command surgeon, NATO, and Peruvian Rear Admiral Mauro Cacho, commander of Peruvian Navy Medicine.

Sanders leaves NAMRU-6 after four years guiding what was previously the Naval Medical Research Center Detachment and then serving as the first commanding officer of NAMRU-6 after its establishment in November 2010. Sanders transferred to NMRC, where he will take over as the executive officer in August.

Service comes to NAMRU-6 from the Naval School of Health Sciences in San Diego, where he served as the executive officer. Prior assignments



Captains John W. Sanders (right) and David B. Service (left) salute one another after officially changing command.

include a wide variety of postings in research, engineering, training and assignments with the line.

In his address to the crowd of more than 300, Service remarked, "The important and valuable research partnerships forged by Capt. Sanders and his predecessors at NAMRU-6 will be preserved, nurtured and strengthened." He added, "The command will continue its mission with Peru and other Andean allies in the common struggle against relentless virologic, parasitic and bacteriologic enemies that challenge the health and quality of life of people throughout the region."

NAMRU-6 is the U.S. Navy's only command headquartered in South America. With a dedicated staff of U.S. military, Peruvian military, civilian employees and contractors, NAMRU-6 works to enhance the biosecurity of the United States and the region by detecting diseases of military and public health significance and developing new strategies or products, including diagnostics, medicines, vaccines and vector control measures, to mitigate those biosecurity threats.

In closing, Capt. Service addressed his words directly to the members of

NAMRU-6 by saying that he was honored and humbled to join them at such a superb institution. "Your reputation is excellent and world renowned", he said. "I pledge that I will do my very best to serve you as your commanding officer."

Navy Medicine's New Blog

From BUMED Public Affairs

Navy Medicine announced the launch of its new blog, which is designed to facilitate a two-way dialogue between Navy Medicine and its stakeholders, including service members and their families.

"My hope is that this open forum will serve to inform and generate lively discussion all across our enterprise and around the world," said Vice Adm. Adam M. Robinson, Jr., U.S. Navy surgeon general.

Blog topics will include Navy Medicine's support of global operations, humanitarian aid and disaster relief, stories about the courage and sacrifice of Navy Medicine, and noteworthy research and development.

The blog is available at <http://navymedicine.navylive.dodlive.mil/>.



Captains Sanders (left) and Service (right) cut the cake during the reception immediately following the ceremony.

U.S., Vietnam Establish Formal Military Medical Partnership

From U.S. Navy Bureau of Medicine and Surgery Public Affairs

Navy Surgeon General Vice Adm. Adam M. Robinson, Jr. participated in a signing ceremony August 1 with the Vietnamese Ministry of National Defense, establishing the first formal military-to-military relationship between the U.S. and Vietnam since the establishment of diplomatic relations in 1995.

Representing the Office of the Assistant Secretary of Defense for Health Affairs, Robinson signed a Statement of Intent (SOI) on Military Medical Cooperation with Senior Colonel Vu Quoc Binh, director general of the Vietnamese Ministry of National Defense's Military Medical Department. U.S. Embassy Chargé d'Affaires Claire Pierangelo and Vietnam's Deputy Minister of National Defense Lt. Gen. Le Huu Duc witnessed the signing.

The signing ceremony represented progress on one of the key areas of military cooperation that former Secretary of Defense Robert Gates and Minister of Defense Phung Quang Thanh agreed to pursue in October 2010.

The SOI builds on a long trend of cooperation between the U.S. and Vietnamese militaries and will be the foundation for all future military medical and interagency medical engagements, which will include subject matter expert exchanges, workshops, conferences, medical civil action projects, clinical exchanges and medical research collaboration.

"This is an important day between our two nations," said Pierangelo. "This growing military medical partnership will benefit the U.S. and Vietnam and also contribute to increasing our health cooperation in the region."

According to Robinson, this historic agreement is the culmination of over three years of diplomatic visits and discussions and begins a bright future regarding the medical opportunities between the two countries.

"This historic bilateral agreement is



U.S. Navy Surgeon General Vice Adm. Adam M. Robinson, Jr. signs a Statement of Intent on Military Medical Cooperation with Sr. Col. Vu Quoc Binh, director general of the Vietnamese Ministry of National Defense's Military Medical Department. U.S. Embassy Chargé d'Affaires Claire Pierangelo and Deputy Minister of National Defense Lieutenant General Le Huu Duc witnessed the signing. The signing ceremony represents continued progress on a key area of military cooperation outlined by former Secretary of Defense Robert Gates and Minister of Defense Phung Quang Thanh in October 2010. Photo by Capt. Cappy Surette.

not about personalities or politics," said Robinson. "Medicine and medical research are universal languages that all countries and cultures understand. Diseases affect us all in the same way. By working together in areas such as infectious disease research, we not only help each other, we help the world meet these global health challenges."

The foundation for this historic agreement began with a meeting between Robinson and Vietnamese Lt. Gen Chu Tien Cuong, who was then the director of the Military Medical Department of Vietnam, at the annual Association of Military Surgeons of the United States (AMSUS) conference in St. Louis in November 2009. During their initial meeting, they discussed opportunities to increase military medical collaboration between the U.S. and Vietnam. Numerous follow-on diplomatic meetings and discussions

followed, culminating in the agreement to formalize a military medical partnership.

Robinson participated in the signing ceremony while visiting Hanoi to co-chair a planning conference on bilateral military medical cooperation with the Vietnamese Ministry of Defense. Topics of discussion will include humanitarian assistance/disaster response, infectious disease research, aerospace and undersea medicine, and more.

As the Navy Surgeon General and Chief, Bureau of Medicine and Surgery, Robinson leads 63,000 Navy Medicine personnel that provide healthcare support to the U.S. Navy, Marine Corps, their families and veterans in high operational tempo environments, at expeditionary medical facilities, medical treatment facilities, hospitals, clinics, hospital ships and research units around the world.

NAMRU-Dayton Investigates Neural Localization of Spatial Processing



By NAMRU-Dayton
Public Affairs

Establishing orientation in one's environment is necessary to perform virtually all aspects of normal behavior, so it is not surprising that spatial disorientation (SD) poses a significant hazard during physically and cognitively demanding activities such as aviation. The Naval Safety Center cites this cognitive threat as the principal contributing factor in class A aviation mishaps.

Recognizing the need to develop countermeasures for SD, the Naval Medical Research Unit–Dayton ([NAMRU-Dayton](#)), in collaboration with the University of Dayton Research Institute (UDRI), is pursuing innovative research aimed at advancing our understanding of the human brain's spatial orientation system.

Previous laboratory research established the existence of a network of specialized neurons within specific

brain regions that integrates visual and vestibular (motion) signals, creating an “anatomical spatial display” that operates much like a compass and perhaps a gyroscope, orienting an animal to its position within an environment. In humans, a recent clinical study utilizing functional magnetic resonance imaging (fMRI) techniques found similar neural processes in participants engaged in a simulated spatial awareness task. However, fMRI imaging requires participants to remain physically motionless, which limits our interpretation of how humans process spatial awareness and SD in real world/operational settings.

To overcome this limitation, a novel project is underway at NAMRU-Dayton that incorporates recording neural activity with simultaneous subject motion in human participants.

Recently, NAMRU-Dayton researchers, led by Dr. Richard Arnold and Lt. Stephen Eggan, met with UDRI scientists and engineers to begin integrating UDRI's advanced 256-channel dense-array



High Density Array EEG system in UDRI Human Factors Group lab.

electroencephalography (dEEG) technology with NAMRU-Dayton's unique Visual Vestibular Sphere Device (VVSD). Unlike standard EEG technology, which measures gross neuroelectrical activity at the scalp, dEEG provides high-resolution neuroelectrical signals that can be reconstructed in three-dimensional space and localized to specific anatomical brain structures.

Additionally, dEEG allows for participant motion during recording, overcoming the limitation of fMRI. NAMRU-Dayton's VVSD will introduce combinations of visual tracking tasks and participant motion during recording, allowing researchers to distinguish between visual and motion influences on spatial processing.

Findings from this collaborative research could identify techniques for future applied NAMRU-Dayton research designed to measure SD during flight simulations and will lay the groundwork for developing future methods of detecting SD and countermeasures to reduce the risk of aviation-related SD mishaps.



NAMRU-Dayton's Visual Vestibular Sphere Device (VVSD) will be used to produce spatial orientation stimuli.

Modeling and Simulation: The Cutting Edge of Medical Logistics

From NHRC Public Affairs

The Naval Health Research Center's (NHRC) modeling and simulation efforts encompass an all-hazards approach. Besides combat injuries, the models include illness and nonbattle injuries, environmental injuries, dental conditions and even preventive medicine practices.

In the late 1990s, NHRC was tasked with developing the Estimating Supplies Program (ESP), a computer-based, patient-driven model of clinical operations, to determine the logistical requirements of battlefield operations at the Emergency Forward Care and Resuscitative Care echelons in the medical network of care. ESP decreased the size of Marine Corps medical inventories known as Authorized Medical Allowance Lists (AMALs) and at the same time increased treatment capabilities. Since then, ESP has been used in the development of new combat treatment facilities.

ESP's underlying database of service-specific medical equipment

and supplies, clinical tasks, treatment protocols and models is housed in NHRC's Expeditionary Medical Knowledge Warehouse (EMedKW). EMedKW's database provides the foundation for several NHRC modeling and simulation programs. The ReSupply Validation Program (RSVP) develops time-phased medical resupply strategies, including push packages, using the ESP modeling process. The same process is used to develop the Marine Corps' medical contingency file, a list of the medical supplies needed in the event of a major contingency.

EMedKW also provides the underlying database for the Tactical Medical Logistics Planning Tool (TML+), a medical risk assessment planning tool. With a graphic user interface and geographic information system capabilities, medical planners can use TML+ to lay down their field medical treatment network using actual maps and distances. TML+ uses multiple iterations of varying patient streams to identify logjams caused by shortages in equipment, consumables

and transportation assets, as well as shortfalls in personnel and increases in patient mortality. A planner can perform "what if" experiments to study the effects of increasing or reducing personnel, adding or subtracting treatment beds, or mixing ground and air evacuation assets. The program has the ability to simulate routine field medical operations such as sick call in addition to medical operations for large-scale combat assaults, peace-keeping and stability operations, and unexpected mass casualty events.

Behind NHRC's modeling efforts is an intense statistical analysis of battlefield-related injuries and disease going back as far as World War II. With operations in Afghanistan and Iraq, NHRC launched a long-term data collection effort in 2004 tracking patient care of U.S. services members from as far forward as frontline battalion aid stations through the entire military medical network of care, including definitive and rehabilitative care back in the U.S. This massive effort, which also includes nonbattle injuries and illnesses data, is the Expeditionary Medical Encounter Database.

The devastation of the Indonesian earthquake/tsunami in 2004 and Hurricane Katrina in 2005 has focused attention on the military's response to disaster and humanitarian crises. As a result, NHRC was tasked with collecting data on patient presentations seen after the 2004 tsunami, the 2005 Sumatra earthquake, and the 2010 earthquake in Haiti. Analysis of those data will eventually lead to modeling tools to aid medical planners in preparing for humanitarian assistance and disaster relief deployments.

Modeling and simulation has become an important tool in all fields of military planning for all service branches. Today, EMedKW houses medical models not only for the Marine Corps, but also for Navy ships, Naval Expeditionary Combat Command units and U.S. Air Force assets. These models represent the entire battlefield continuum of care from the first aid kit used at the point of injury to definitive treatment.



Sailors embarked aboard High Speed Vessel Swift (HSV 2) and members of the Dominican Republic defense forces load pallets of Project Handclasp aid onto trucks for delivery to relief organizations. Swift deployed supporting Southern Partnership Station 2010, a deployment of various specialty platforms to the U.S. Southern Command area of responsibility in the Caribbean and Central America. Photo by Mass Communication Specialist 1st Class Rachael L. Leslie.

NAMRU-3 Helps Djibouti Develop Disease Surveillance Systems

By NAMRU-3 Public Affairs

Djibouti is a country of significant regional and international interest due to its strategic location at the entrance to the Red Sea and along the primary trading route between the Horn of Africa and the Arabian Peninsula. Its geographic position has also created a complex transient population due to the presence of trucking routes, port operations, and refugees from neighboring countries. This migratory population, combined with environmental and economic factors, creates potential for disease transmission within and beyond the borders of the country.

In November 2008 the Djiboutian Ministry of Health (MOH) requested assistance from U.S. Naval Medical Research Unit No. 3 (NAMRU-3) to assist with the development of disease surveillance systems. Since then, with funding from the U.S. Centers for Disease Control and Prevention (CDC), U.S. Department of State (DOS) and the Armed Forces Health Surveillance Center - Global Emerging Infections Surveillance and Response System (AFHSC-GEIS), NAMRU-3 has collaborated with the MOH to strengthen clinical laboratory, disease surveillance and field entomology capacities.

Katherine Chisholm, NAMRU-3 epidemiologist, stated, "We partnered with the Djiboutian MOH to assess the clinical and laboratory capacity of their



NAMRU-3 Djibouti team members with Dr. Mouna Osman, Director of Centre Paul Faure. From left: Dr. Isabelle Nakhla, Dr. Osman, Dr. Salwa Fouad, Ms. Katherine Chisholm, and Lt. Syed Husain.

major health centers. Now we are collaborating on projects to implement recommendations made during that assessment. In addition, we will assist with standing-up several vector surveillance sites to determine which vectors are present and the diseases they are capable of transmitting."

NAMRU-3 has established several surveillance programs. The largest program is an integrated infectious

disease surveillance system designed to estimate the burden of disease, identify etiologies and describe the epidemiology of acute respiratory infection (ARI), acute febrile illness (AFI) and acute diarrheal illness (ADI) in hospital patients. "Patients are screened by

surveillance nurses for signs and symptoms of ARI, AFI, and ADI. Eligible, consenting patients are then asked to complete a basic questionnaire with demographics, vaccination history, hospitalization information and antibiotic use. Samples are later collected based on the syndrome in which the patient is enrolled," explained Chisholm. The National Public Health Institute (NPHI), local hospital laboratories and NAMRU-3 laboratories processed the samples and provided the results to local health care providers for their analysis and use in patient treatment.

The infectious disease surveillance system developed in Djibouti City was designed to complement the Djiboutian National Surveillance System and to develop the capacity to meet international health regulations. NAMRU-3 will continue to provide laboratory expertise, training, equipment and supplies to support the NPHI and individual healthcare facilities to improve patient diagnosis and support infectious disease surveillance.



Ms. Katherine Chisholm (left) meets with Centre Paul Faure laboratory technicians to discuss tuberculosis and respiratory surveillance activities.

Navy Turns Over Keys to Brooks Development Authority

By NAMRU-San Antonio Public Affairs

After seventeen years at Brooks City-Base in San Antonio, Texas, the Directed Energy Biomedical Research team took down the command sign and turned over the keys of the Navy facilities to the San Antonio Brooks Development Authority, June 15. Throughout those seventeen years of conducting directed-energy biomedical-effects research along with Air Force and Army research partners, the move to Texas was a true success.



Capt. Steven Sidoff, Deputy Science Director, turns over the Navy facility keys to Ms. Debra Mounce.

The Navy's medical research and development presence in San Antonio began in 1994 as a result of Project Reliance and Base Realignment and Closure (BRAC) 91. The detachment was established October 1, 1994, when it relocated from the Naval Aerospace Medical Research Laboratory, Pensacola, Fla. to Brooks Air Force Base, Texas as the Electromagnetic Research Detachment (EMR DET) of the Naval Medical Research Institute (NMRI), Bethesda, Md. This relocation resulted in the collocation of the Army, Navy and Air Force electromagnetic research programs and the formation of the Tri-Service Directed Energy Bioeffects Research Laboratory with the goal of understanding and managing the risks associated with human exposure to radio frequency, microwave, optical (i.e., laser), and low-frequency injected current directed-energy sources.

The EMR DET NMRI was awarded the Navy Meritorious Unit Commendation for service from February 1, 1995 to

August 31, 1997.

October 1, 1998, EMR DET was realigned under the Naval Health Research Center (NHRC), San Diego due to the disestablishment of NMRI and was renamed the Naval Health Research Center Detachment, Directed Energy Bioeffects Laboratory (NHRC-DET DEBL).

Examples of research conducted at NHRC-DET DEBL include the development of a precise computer model of the human body to predict the absorption of non-ionizing radiofrequency radiation and the development of safety standards; determination of the effects of hostile non-lethal laser-illumination events on aircraft pilots and small boat operators; the use of lasers to detect chemical-biological agents; and directed-energy-based medical treatment protocols. Much of this research is also used to help set international safety standards, which in turn help protect the health and safety of people around the world.

July 22, 2002 the Air Force turned over the keys to Brooks Air Force Base to the City of San Antonio and it was renamed Brooks City-Base.

In 2005, when the BRAC Commission placed Brooks Air Force Base on the Base Closure List, they also recognized that Project Reliance had been a success. The Tri-Services clearly demonstrated they can effectively work together in a single location, to such an extent that the Tri-Service research group is now an internationally recognized and respected authority on directed energy bioeffects and safety standards. It was recommended that the Tri-Service research partners relocate to Fort Sam Houston, Texas as a team and continue their strong tradition of collaborative research.

The directed energy detach-



Capt. Vincent DeInnocentiis, commanding officer; Dr. John D'Andrea, science director; and Mr. Randal LeBlanc, director, research support take down the command sign at Brooks City-Base.

ment, now part of the Naval Medical Research Unit-San Antonio due to BRAC, has moved into the new Tri-Service Research Laboratory. This new state-of-the-art facility is an 181,620 square foot, single story building constructed on 25 acres at Fort Sam Houston. The laboratory will house 272 researchers, technicians, program managers and support staff and replace the 34 buildings the Tri-Service Directed Energy research team occupied while on Brooks City-Base.

The Tri-Service Directed Energy research team was sad to leave Brooks City-Base, but they look forward to the new scientific challenges of the future and continuing in their new facility the strong Tri-Service relationship that was established throughout the past seventeen years.



An aerial view of the new Tri-Service Research Laboratory.

Radiation Health Community Responds to Japanese Disaster Relief Efforts

By Cmdr. Ted St. John, Executive Officer, [NAMRU-San Antonio](#), and MARFORPAC Radiation Health Officer for Operation Tomodachi

Radiation health officers (RHOs) fill a variety of diverse operational and support billets within the Navy and Marine Corps. RHOs and radiation health technologists (RHTs) are trained to understand and explain the risks and benefits of radiation; they do it routinely in hospitals and wherever radioactive sources are used for industrial applications. Risk communication is just a small part of what nearly half of the Navy's RHO community and several RHTs have done since the Japanese reactors in Fukushima Prefecture made world headlines. The plant suffered major damage from the 9.0 earthquake and subsequent tsunami that hit Japan March 11. Navy RHOs were engaged to support the Sailors and Marines stationed in Japan and those aboard ships steaming within range of the expected radioactive plume.

Most of the RHOs who were tasked to respond did so within 48 hours of being contacted. The most important and immediate impact was the assurance they provided - that personnel and equipment were not in any immediate danger. Without that assurance, commanding officers might have been uncertain about their ability to meet their mission requirements and their crews would have been subjected to high levels of stress resulting from fear of the unknown.

I was assigned to Lt. Gen. Thiessen, Commanding General, Marine Forces Pacific and the Pacific Command Joint Radiation Health Working Group at Camp Smith, Hawaii along with Capt. Brendan Glennon and Cmdr. Jim Cassata. We worked with Army and Air Force radiation health experts to establish the hub of communications for a world-wide network of radiation health experts, including Navy RHOs in the U.S., representatives from naval reactors, Army and Air Force Public Health Centers and all of the RHOs in theater. We collected, shared and

analyzed data, advised Rear Adm. Michael Mittelman, Pacific Command Surgeon, and recommended guidance and policies for U.S. forces in Japan.

The immediate response phase lasted nearly six weeks. By then, it was clear there was no significant health risk due to radiation and several RHOs returned to their regular jobs. To determine the long-term risk and to provide documented evidence that Sailors and Marines did not ingest any significant quantities of radiation, RHOs were assigned the monumental task of conducting internal monitoring and dose reconstruction for all personnel in the area at the time of the accident as well as for those who provided humanitarian assistance. Three whole-body counters and 30 portable scintillation counters were sent to Japan to complete this task.

Thanks to the combined efforts of all radiation health professionals who supported Operation Tomodachi, there were no incidents or mission degradations attributable to radiation or even the fear of radiation exposure.

Comprehensive Blast Injury Symposium 2011 in Bangkok



The Comprehensive Blast Injury Symposium (CBIS) 2011, held from June 6-10 in Bangkok, was co-sponsored by Thailand and the U.S. Pacific Command as an information sharing forum for all aspects of medical care to patients hurt in blast injuries. The symposium brought both civilian and military service members from the United States and South-east Asia for training that was assigned to five "tracts" (first responders, patient transport, physicians, nurses, and patient rehabilitation) to help focus the spectrum and continuity of care for blast casualties. Chris Burns from [Naval Medical Research Unit-San Antonio](#) was asked to be the team leader for the first responders based on his knowledge of tactical combat casualty care along with his real-world experience as a tactical evacuation care provider in Operation Enduring Freedom - Afghanistan. He led an experienced group of medical personnel from the Washington State Army National Guard, the office of U.S. South Command, and the Defense Medical Readiness Training Institute to provide both didactic and hands-on training for 70 personnel from Thailand, Vietnam, Cambodia, Laos and the Philippine Islands.

Newly Approved DoD-CLIP Certified Laboratory at NMRC

Providing quality medical care is always a top priority to the U.S. Navy. A recent accomplishment for the Naval Medical Research Center (NMRC) Viral and Rickettsial Diseases Division is the new Naval Infectious Diseases Diagnostic Laboratory (NIDDL). In June, NIDDL successfully achieved the DoD Clinical Laboratory Improvement Program (CLIP) certification as a high-complexity clinical laboratory.

Lt. Cmdr. Todd Myers, the lab's clinical director and a certified High Complexity Clinical Laboratory Director by the American Board of Bioanalysts, said, "It's a great idea! It's something that's been needed for a long time. It fills the gap between the basic benchside research and the bedside need for assays. The lab will be able to function as a sort of liaison between the clinical, research and [public health] surveillance worlds, tying all three together."

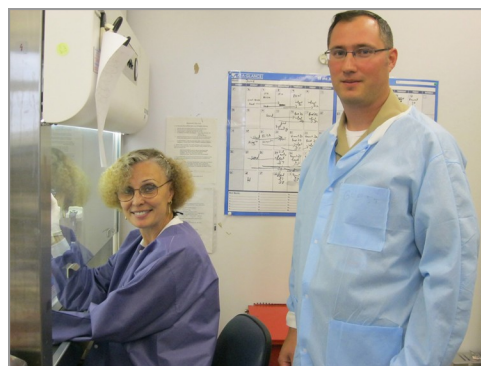
This achievement gives NIDDL the qualifications under the DoD-CLIP rules to perform diagnosis for treatment purposes.

"This effort brings a much-needed service in-house," said Myers. "With

the CLIP certification, the new laboratory would allow military physicians to send their samples directly to our laboratory instead of sending to a corporate lab. The results can be processed with a quicker turnaround time, with the added bonus of in-house infectious disease experts who can provide overall diagnostic information to physicians, all at a cost savings per assay to DoD."

NIDDL's goal is to focus on the more unique diseases that typically require the Military Treatment Facilities (MTFs) to send their samples to outside organizations and corporate labs. In addition to supplying the diagnosis, NIDDL has the added advantage of being connected to DoD infectious disease experts across the entire enterprise. If a unique question arises, the staff at NIDDL can easily contact the field's leading experts for advice and consultation.

In addition to providing unique diagnostic services to the MTFs, NIDDL will also focus on developing and continuing collaborations with the research and the public health surveillance communities to provide assay



Monika Simmons, technical supervisor, and Lt. Cmdr. Todd Myers, clinical director of the new Naval Infectious Diseases Diagnostic Laboratory.

development with the ultimate goals of achieving FDA approval and adding capabilities to laboratory and public health surveillance missions.

The achievement of the CLIP certification allows NIDDL to become surge capacity for the Navy, so if an outbreak happens, like H1N1, NMRC now has the capacity to quickly process assays for diagnosis, supporting total force health protection. NIDDL plans to become a member of the Laboratory Response Network.

NAMRU-2 Installs New SMS Incident Reporting System in Cambodia

By Lt. Dustin J. Harrison, NAMRU-2 Public Affairs

U.S. Naval Medical Research Unit No. 2 (NAMRU-2) Detachment Phnom Penh recently installed a new Short Message Service (SMS) incident reporting system within the Royal Cambodian Armed Forces (RCAF) health group in Region 3 (Kampong Speu, Koh Kong, Sihanoukville, Kampot, Takeo, and Kep Provinces), Cambodia. The new system is designed to allow RCAF health care providers to upload pertinent data via SMS to a computer. The computer software then compiles the information, which can be visualized on a map of Region 3. The system will track information on twelve syndromes currently being followed by the Cambodian Communicable Disease Control Department and the World Health Organization and

is also capable of tracking incidents of poisoning, accidents/bodily harm, radiological exposure and "unknown" causes. Zero reporting and reporting the number of consultations will be used as the quality control indicators.

The system was developed to mitigate the problems of the RCAF's current paper-based reporting system. Paper-based systems have inherent flaws such as delays in relaying information and vulnerability to duplication or double and triple reporting as information passes through the reporting chain. With the new system, each incident will be reported directly from the point-of-care health worker to the regional office by SMS. The regional office will then send a summary report to the RCAF Department of Health headquarters via email.

NAMRU-2 Detachment Phnom Penh

database manager Mr. Tengson Phuong, information technology manager Mr. Sophorn, and medical officer Dr. Chamnam traveled with the system development team to RCAF Region 3 headquarters to install the new NAMRU-2 SMS incident reporting server and networking cell phone. Maj. Khim (RCAF) and the Region 3 health team were briefed on the hardware and software operation and proposed a standard operating procedure to report incidents by SMS to higher headquarters.

"We hope that the introduction of the new system will dramatically improve disease surveillance and outbreak response for the RCAF. We also hope to help the RCAF develop the epidemiological capacity to respond to suspected outbreaks" said Lt. Chad Yasuda, NAMRU-2 microbiologist.

Meritorious Civil Service Awards Presented to Galarneau, Larson



Michael Galarneau was presented the Meritorious Civil Service Award in June. Galarneau leads the Medical Modeling and Simulation Department at the Naval Health Research Center (NHRC). His conceptualization and development of the Expeditionary Medical Encounter

Database (EMED) has made a significant impact on injury types and medical requirements from far-forward operational locations. Galarneau and his team have designed a capability that integrates medical data from all levels of care and combines multiple DoD databases, enabling careful analysis of medical issues and outcomes related to specific combat incidents and early delivery of care.

To date, medical profiles of over 4,500 soldiers and Marines have been analyzed. These data focused studies on body wound mapping related to exposures and personal protective equipment use, specific medications and procedures at far-forward locations, and estimation of how injury severity relates to mortality as a function of evacuation efficiencies. Under Galarneau's leadership, the EMED team supports the Joint Trauma and Prevention of Injury in Combat (JTAPIC) program to enable forensic analyses of blast events involving combat vehicles. These first-of-a-kind analyses have resulted in numerous on-the-fly changes to combat vehicular armoring, both during production and in the field, along with guidance on the use of personal protective equipment within the vehicles and tactical guidance to field commanders. These data have enabled Galarneau to develop and guide a team dedicated to conducting modeling and simulation studies that address the delivery and consumption of a medical supply inventory over a series of time intervals and to model patient arrivals, treatments and outcomes as they flow from the point of injury through a network of care facilities. This capability is now used to support the design of new far-forward medical treatment facilities and to ascertain ship functional survivability as a function of blast incidents.

Photo: Michael Galarneau, department of medical modeling, simulation and mission support, NHRC, is presented the Meritorious Civil Service Award by Capt. Gregory Utz, M.D., commanding officer, NHRC. Photo courtesy of NHRC Public Affairs Office.

Dr. Jerry Larson was presented the Meritorious Civil Service Award in June. Larson, a research scientist in the department of behavioral sciences and epidemiology at the Naval Health Research Center (NHRC),



conceptualized and managed the development of the "Post-deployment User's Guide," which offers activities and practical information in twelve life domains, including personal growth, relationships, mental health, grief and guilt, physical health and substance use. The organizing theme of the workbook is goal-setting, including worksheets and tools to help returning veterans prioritize their lives, set new short-term goals and work to achieve them in balance with other life challenges. In 2010, the Marine Corps began distributing 100,000 copies of this workbook.

Larson also directed the development of a graphic novel called "The Docs" that helps to destigmatize combat stress in pre-deployed and deployed Navy Hospital Corpsmen through the depiction of highly realistic scenarios faced by each of four corpsmen. The graphic novel has been adopted as a training aid by the Field Medical Training Battalion at Camp Pendleton and is part of the Caregiver Stress Management Program at the Role 3 hospital in Kandahar, Afghanistan with over 2,000 copies already distributed and another 2,500 on order. Larson also developed the short video "Echoes" for the purposes of destigmatizing mental health care for Marine infantry members that are experiencing the signs and symptoms of post-traumatic stress disorder as a result of traumatic events in combat. This video has been widely lauded and is now routinely used as a training tool for both Marine and Navy personnel. These tools will help sustain the resilience of Sailors and Marines and help lessen the mental health burden associated with combat.

Photo: Dr. Jerry Larson, department of behavioral sciences and epidemiology, NHRC, is presented the Meritorious Civil Service Award by Capt. Gregory Utz, M.D., commanding officer, NHRC. Photo courtesy of NHRC Public Affairs Office.

A Brief History of NAMRU-2's Involvement in the Philippines



By NAMRU-2 Public Affairs

Early in 1967, U.S. Naval Medical Research Unit No. 2 ([NAMRU-2](#)) began engagements with the Republic of the Philippines while headquartered in Taipei, Taiwan, commencing an extremely productive and beneficial working relationship that would last until 1994. The first fruits of this labor were actualized in 1970, when Dr. John Cross, while working with Philippine researchers, identified a new parasitic disease with epidemic potential and the source/host of the parasite, *Capillaria philippinensis*. The first attributable cases of disease caused by this parasitic worm occurred in Ilocos, Northern Luzon, and were found to be caused by ingestion of raw, infected fish. It was a joint collaboration between NAMRU-2 and Philippine Public Health that led to the ground-breaking discovery.

In 1979, due to political reasons, NAMRU-2 relocated its headquarters from Taipei, Taiwan, to Manila, Philippines. This was the impetus for an unprecedented and productive period for NAMRU-2.

The scientific collaborations with the Philippines, fostered in the early 1970s, led to many ground-breaking scientific discoveries and cutting-edge science. Among the myriad research projects were the study of diseases that are still of primary importance to deployed U.S. military personnel, including leptospirosis, dengue fever, chloroquine-resistant malaria, gastroenteritis and diarrhea, traveler's diarrhea, intestinal parasitic infections, scrub typhus, influenza, drug-resistant gonorrhea, typhoid fever, Japanese encephalitis virus, and HIV, as well as a multitude of drug, vaccine and vector control trials.

From 1969 to 1994, NAMRU-2 scientists and the Philippine researchers wrote more than 193 peer-reviewed journal articles. These articles appeared in prestigious internationally read journals such as the *Lancet*; the *Journal of Clinical Microbiology*, *Infection and Immunity*; *South-east Asian Journal of Tropical Medicine and Public Health*; the *American Journal of Tropical Medicine and Hygiene*; and the *New England Journal of Medicine*.

The significance and impact of the work done in the Philippines by NAMRU-2 cannot be overstated. The

data collected during this time was not only of importance to DoD, but was important to Philippine Public Health as well.

Central to the mission of NAMRU-2 is capacity building and training of our host and country partners. All of the above-referenced journal articles have a minimum of one Filipino author (often more than one), demonstrating the commitment of NAMRU-2 personnel to strengthening the capabilities of our allies. Coinciding with the knowledge transfer was also a technological transfer, as many new and novel assays and techniques were developed during our time in the Philippines for use in the Philippines.

Unfortunately, due to political unrest in the Philippines, NAMRU-2 was forced to relocate once again, and did so to the NAMRU-2 Detachment in Jakarta, Indonesia in 1990. However, the collaborations that were forged over the 23-year engagement continued until the last published paper, co-authored by NAMRU-2 and our Philippine hosts in 1994, brought to an end an extremely lucrative period of research. This is a brief history and is in no way conclusive of all that was done, merely an excerpt of a much larger body of work.

Community Outreach: NMRC Researcher and Basketball Coach

Director of the Infectious Diseases Directorate at NMRC, Capt. Kevin Porter, is a volunteer coach for the Germantown Lady Panthers Amateur Athletic Union (AAU) girls' basketball club in Maryland. He is head coach of the 15 and under (15U) Lady Panthers Silver Team and assistant coach of the 16 and under (16U) Lady Panthers Gold Team. Capt. Porter's daughter, Kelsey, served as his assistant for the Silver Team.

The 15U Silver Team had a phenomenal 2011 season, capturing the 15U Potomac Valley Division I AAU Championship title (first-ever for the Panther organization) and finishing in the top 10 out of 64 teams at the Penn State USA Blue Chip Invitational Tournament. The Gold Team also had a fantastic season, winning the Silver Medal at the 16U Potomac Valley Division I AAU Tournament and winning the 2011 Penn State USA Blue Chip Invitational Tournament Championship, a first for the Washington D.C., Maryland, and Virginia area. Congratulations Coach Porter and the Lady Panthers!

Photo: Capt. Kevin Porter, aka Coach Porter, surrounded by the Germantown Lady Panthers AAU basketball team during a game.



Svec Places in International Young Investigator Competition

By NAMRU-San Antonio Public Affairs

Lt. Leedjia Svec, principal investigator with the Naval Medical Research Unit-San Antonio ([NAMRU-San Antonio](#)), was invited to compete in the Space Medicine Association's international young investigator competition. Researchers who study aviation medicine or aviation performance and who are still young in their careers were invited to participate. To compete, Svec had to write a manuscript and present her research for judging during the 82nd Aerospace Medicine Association's (AsMA) annual conference in Anchorage, Alaska. The finalists in this year's competition were selected from 175 contestants. Svec was awarded fourth place in this tough international competition.

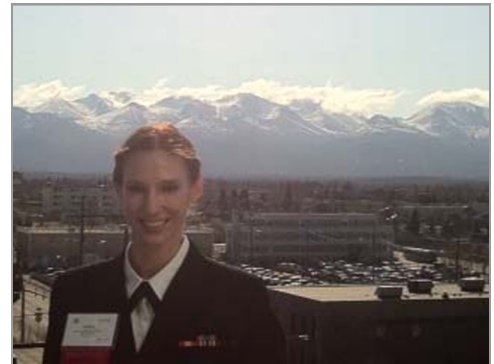
According to Dr. Jeffrey Myers, after whom the award is named; "Lt. Svec's presentation was judged to represent the top of the performances at the

conference."

Svec presented current research in laser eye protection (LEP) and mathematical modeling. Her research was titled, "Predictive models of visual behavior in the military environment," and was coauthored by Dave Freeman, M.A.; Tom Kuyk, Ph.D. TASC; and Lt. Col. Martin LaFrance, Ph.D./O.D.

Svec is especially grateful for her dedicated team of colleagues and said, "I could not have achieved this accomplishment without their help; this is their award, too."

Within the Directed Energy Biomedical Research Department, Svec and her colleagues identify, understand and manage the bio-behavioral effects and risks associated with human exposure to radiofrequency, microwave, optical radiation (laser) and low-frequency injected current directed-energy sources. Part of that program is LEP and visual effects such as color vision or glare.



Lt. Leedjia Svec in Anchorage, Alaska, where the competition and conference were held.

NAMRU-San Antonio's mission is to conduct medical, dental and directed energy biomedical research that focuses on ways to enhance the health, safety, performance and operational readiness of Navy and Marine Corps personnel and addresses their emergent medical and dental problems in routine and combat operations.

Greetings from the NMRC Ombudsman!

I hope everyone is having a great summer and finding ways to deal with the heat! With the extreme temperatures, make sure you know how to deal with the heat appropriately. Keep up with local weather forecasts to plan your activities for the day. Put off strenuous activities until cooler times of the day. Drink lots of water. Check on friends and neighbors that may not be able to tolerate the heat well. Be aware of the signs of heat exhaustion and heat stroke. Have a safe summer!

Career Planning and Assistance: Taking the next step when changing careers or transitioning back into the civilian workforce can be daunting, not to mention relocations, frequent deployments and today's economy. Job searches take time, energy and preparation. Let the leadership and resilience skill sets you already possess guide your way. There are a variety of programs, resources and tools available to assist as well.

- The Family Employment Readiness Program addresses career challenges through workshops and one-on-one counseling. Check out Fleet and Family Support Center for more information (<http://www.ffsp.navy.mil/>).
- The Wounded Warrior Program (<http://cao.house.gov/wwp-about.shtml>) has a two-year fellowship that provides employment opportunities within the House of Representatives. Positions are available in Congressional district offices nationwide and applicants must have served on active duty since September 11, 2001, have a 30 percent or greater service-connected disability rating and less than 20 years of service.
- Goals, Plan, Succeed. Live trainers facilitate sessions on topics to help you navigate and become prepared for transition into the civilian workforce. Attend a session from the comfort of your home or anywhere broadband Internet and phone are available. Register today for August sessions at <http://www.turbotap.org/>.

Making Moves that Matter: The days of summer are well underway. Staying cool, having fun and getting fit are among the top items on this summer's "to-do" list. Some ideas to get you started include: visit a National or State Park, eat fresh summer fruits and vegetables, listen to audio books through Navy Knowledge Online's General Library (<https://www.nko.navy.mil/>), and bike or walk to nearby destinations.

If you need more information on these or any other resources, please contact me at angela.prouty@med.navy.mil or 217-722-4981.

Angela Prouty
Ombudsman, NMRC

NAMRU-3 Supports Force Health Protection in the Horn of Africa

By NAMRU-3 Public Affairs

Camp Lemonnier, established in Djibouti in 2002, is the only fixed U.S. base under the Africa Command (AFRICOM) and is also home to the U.S. Combined Joint Task Force-Horn of Africa (CJTF-HOA).

Originally focused on counter-terrorism operations, the camp's mission has now expanded to include strengthening partnerships and contributing to stability in East Africa. This serves as part of a comprehensive approach to increase African partner nations' capacity to maintain stable environments for their citizens.

The increasing role of U.S. military personnel in the region is also important from a force health protection perspective. Lt. Cmdr. Peter Sebeny, a U.S. Naval Medical Research Unit No. 3 (NAMRU-3) research clinician who has worked in the region, said, "With the growing presence of U.S. personnel in Africa, there is a need to better understand infectious disease threats in the region, which can be challenging since little surveillance data and public health capacity exists. Improved surveillance and laboratory diagnostics are the cornerstone to gaining a better understanding."

NAMRU-3 initiated a diarrheal surveillance project at Camp Lemonnier's Expeditionary Medical Facility (EMF) in 2007 with plans to integrate the surveillance to include other illnesses, including influenza-like illness and acute febrile illnesses such as malaria. NAMRU-3's research activities are under an umbrella protocol aimed at detecting health threats among deployed military personnel and



Lt. Cmdr. Peter Sebeny (second from left) briefs NAMRU-3 surveillance team members on sick-call procedures at the Expeditionary Medical Facility (EMF), Camp Lemonnier.

are executed in accordance with the NAMRU-3 Military Infectious Disease and Operational Health Surveillance Network.

The importance of a surveillance system is that it can identify new disease trends or infectious disease outbreaks. For example, during the early period of the 2009 H1N1 influenza pandemic, the EMF, with direct support from NAMRU-3, utilized the existing surveillance system to identify an outbreak of seasonal influenza A (H3N2). That surveillance also identified the first confirmed pH1N1/2009 influenza cases in the Horn of Africa among U.S. service members. Ongoing surveillance has also been important in identifying common etiologies of acute gastroenteritis in the region, including Enterotoxigenic *E. coli* (ETEC) and norovirus. Recent findings from this surveillance were presented by NAMRU-3 at the European Command and AFRICOM Sci-

ence and Technology Conference in June 2011.

Limited laboratory capacity within the EMF remains a challenge, but NAMRU-3 is currently working with camp leadership and the French military (who have well-established clinical laboratory facilities in Djibouti) to solve this problem.

"Establishing better local laboratory capabilities in Djibouti will be important for current surveillance efforts as well as to conduct more advanced studies to understand the causes, burden and impact of gastroenteritis, one of the most common illnesses in deployed populations," said Sebeny.

It is through efforts such as these that NAMRU-3 has built valuable professional relationships with the EMF and the CJTF-HOA staff and continues to play an important role in force health protection in Africa.

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